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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/607,796      | 06/27/2003  | Ronald D. Javor      | 42P16081            | 6501             |

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| EXAMINER |
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LU, ZHIYU

|          |              |
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| ART UNIT | PAPER NUMBER |
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2618

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE  | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS                               | 04/16/2007 | PAPER         |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

|                              |                               |                              |  |
|------------------------------|-------------------------------|------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/607,796 | Applicant(s)<br>JAVOR ET AL. |  |
|                              | Examiner<br>Zhiyu Lu          | Art Unit<br>2618             |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-14 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-14 and 16-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments, see Appeal Brief, filed 01/03/2007, with respect to the rejection(s) of claim(s) 1-4, 6-14 and 16-19 under 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Buternowsky et al., Ishizaki et al., and Ying.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 6-11, 14 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buternowsky et al. (US Patent#6088407) in view of Ishizaki et al. (US Patent#5274388).

Regarding claim 1, Buternowsky et al. teach an apparatus, comprising:

a first antenna (122 of Fig. 2) coupled to a first receiver (102 of Fig. 2), wherein the first receiver comprises a first low noise amplifier (220 of Fig. 2) having an input terminal coupled to the first antenna and an output terminal coupled to a first mixer (230 of Fig. 2); and

a second antenna (122 of Fig. 2) coupled to a second receiver (102 of Fig. 2), wherein the second receiver comprises a second low noise amplifier (220 of Fig. 2) having an input terminal

coupled to the second antenna and an output terminal coupled to a second mixer (230 of Fig. 2);  
and

a voltage controlled oscillator coupled to the first mixer and to the second mixer (250 of Fig. 2).

But, Buternowsky et al. do not expressly disclose the second antenna having a radiation pattern different than a radiation pattern of the first antenna.

Ishizaki et al. teach an apparatus with a second antenna having a radiation pattern different than a radiation pattern of a first antenna (1-2 of Fig. 1, column 3 lines 47-53).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate using two different types of antenna taught by Ishizaki et al. into the apparatus of Buternowsky et al., in order to prevent receiving strength from being degraded due to change in application environment.

Regarding claim 10, Buternowsky et al. and Ishizaki et al. teach a system comprising: a wireless wide area network device (abstract of Ishizaki et al.) comprising limitations as explained in the response to claim 1 above.

Regarding claim 14, Buternowsky et al. and Ishizaki et al. teach a method as explained in the response to claim 1 above.

Regarding claim 6, Buternowsky et al. and Ishizaki et al. teach the limitation of claim 1.

Buternowsky et al. teach the first receiver is a direct conversion receiver and wherein the second receiver is a direct conversion receiver (102 of Fig. 2).

Regarding claim 7, Buternowsky et al. and Ishizaki et al. teach the limitation of claim 1.

Buternowsky et al. teach a baseband processor coupled to the first receiver and the second receiver (column 2 lines 52-55, column 3 lines 36-41).

Regarding claim 8, Buternowsky et al. and Ishizaki et al. teach the limitation of claim 1.

Buternowsky et al. and Ishizaki et al. teach the first antenna receives a first radio frequency signal and the second antenna receives a second radio frequency signal that is not correlated to the first signal and further comprising a baseband logic circuit adapted to process the first radio frequency signal and the second radio frequency signal to provide interference detection and cancellation (column 2 lines 27-42, column 6 lines 36-59).

Regarding claim 9, Buternowsky et al. and Ishizaki et al. teach the limitation of claim 1.

Buternowsky et al. teach the first receiver is adapted to down convert a first signal from the first antenna and wherein the second receiver is adapted to down convert a second signal from the second antenna (column 3 lines 3-11).

Regarding claim 11, Buternowsky et al. and Ishizaki et al. teach the limitation of claim 1.

Ishizaki et al. teach the wireless wide area network device is a cellular telephone (column 1 lines 6-7).

Regarding claim 16, Buternowsky et al. and Ishizaki et al. teach the limitation of claim 14.

Ishizaki et al. teach receiving the first signal from an omni-directional antenna having a non-directive radiation pattern (1 of Fig. 1).

Regarding claims 3 and 17, Buternowsky et al. and Ishizaki et al. teach the limitations of claims 1 and 16.

Ishizaki et al. teach the first antenna is a whip antenna (1 of Fig. 1).

3. Claims 2, 4, 12-13 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buternowsky et al. (US Patent#6088407) in view of Ishizaki et al. (US Patent#5274388) and Ying (US Patent#6697020).

Regarding claims 2 and 13, Buternowsky et al. and Ishizaki et al. teach the limitations of claims 1 and 10.

But, Buternowsky et al. and Ishizaki et al. teach do not expressly disclose the first antenna is an omni-directional antenna having a non-directive radiation pattern and wherein the second antenna is a directive antenna having a directive radiation pattern.

Ying teaches a portable device having a first antenna is an omni-directional antenna (Cellular, 21 of Fig. 3) having a non-directive radiation pattern and wherein a second antenna (GPS, 16 of Fig. 3) is a directive antenna having a directive radiation pattern (column 2 lines 9-27).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate having an omni-directional antenna and a directive antenna taught by Ying into the modified apparatus and system of Buternowsky et al. and Ishizaki et al., in order to provide antennas in different characteristics with minimizing surface space usage.

Regarding claim 4, Buternowsky et al. and Ishizaki et al. teach the limitation of claim 1.

But, Buternowsky et al. and Ishizaki et al. do not expressly disclose the second antenna is a microstrip patch antenna.

Ying teaches a portable device having its second antenna being a microstrip patch antenna (column 2 lines 28-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate having second antenna being a microstrip patch antenna taught by Ying into the modified apparatus of Buternowsky et al. and Ishizaki et al., in order to provide low-cost antenna with minimizing surface space usage.

Regarding claim 12, Buternowsky et al. and Ishizaki et al. teach the limitation of claim 11.

But, Buternowsky et al. and Ishizaki et al. do not expressly disclose at least a portion of the first antenna is external to a housing of the cellular telephone and wherein the second antenna is internal to the housing of the cellular telephone.

Ying teaches at least a portion of the first antenna is external to a housing of the cellular telephone (column 1 lines 30-37) and wherein the second antenna is internal to the housing of the

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cellular telephone (column 4 lines 19-22), where the two are obvious to one of ordinary skill in the art to combine into one embodiment.

There, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate hiding second antenna in the housing taught by Ying and having an external traditional antenna as the first antenna taught by Ying into the modified system of Buternowsky et al. and Ishizaki et al., in order provide antennas with minimizing surface space usage.

Regarding claim 18, Buternowsky et al. and Ishizaki et al. teach the limitation of claim 14.

But, Buternowsky et al. and Ishizaki et al. do not expressly disclose receiving the second signal from a directive antenna having a directive radiation pattern.

Ying teaches a method of receiving a second signal from a directive antenna having a directive radiation pattern (column 2 lines 9-27).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate using directive antenna taught by Ying into the modified method of Buternowsky et al. and Ishizaki et al. in order to provide directive antenna characteristic with minimizing surface space usage.

Regarding claim 19, Buternowsky et al., Ishizaki et al., and Ying teach the limitation of claim 18.

Ying teaches the directive antenna is a microstrip patch antenna (column 2 lines 28-32).



*Conclusion*

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zhiyu Lu whose telephone number is (571) 272-2837. The examiner can normally be reached on Weekdays: 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Zhiyu Lu  
April 10, 2007

  
**NAY MAUNG**  
**SUPERVISORY PATENT EXAMINER**